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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/782,500 | 02/13/2001 | Watcharin Pinlam | F0482 | 9934 |

23623 7590 10/08/2003

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CLEVELAND, OH 44114

EXAMINER

LEADER, WILLIAM T

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

1742

DATE MAILED: 10/08/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/782,500

Applicant(s)

PINLAM ET AL.

Examiner

William T. Leader

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3, 8, 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in view of Ennis et al (4,652,368) and Brinkmann (4,852,385).

3. The admitted prior art is that found under the heading "Background Art" at pages 1 and 2 of applicant's specification. The admitted prior art shows that solder plating machines which include means for providing a de-ionized water rinse are known. It is additionally known to provide a de-ionized water pressure gauge and to institute periodic inspection of that gauge.

4. Instant claim 1 differs from the apparatus of the admitted prior art by reciting the inclusion of a pressure sensor and a switch for switching an alarm based on one of more readings supplied by the sensor. The Ennis et al patent is directed to a water filtration system. The apparatus includes conventional pressure gauges 31, 47 and 58. See figure 2. Ennis et al teach that in a more fully automated system, the pressure gauges may be replaced by conventional pressure

transducers and associated electronics to provide an audible alarm signal when differential pressure rises (column 6, lines 1-6).

5. The Brinkmann patent is directed to a device for partially automatic cleaning and calibration of a probe. The apparatus is controlled by a control unit illustrated in figure 4. The control unit includes alarm indicator 116 indicating insufficient rinsing or cleaning water pressure (column 7, lines 32-33).

6. The prior art of record is indicative of the level of skill of one of ordinary skill in the art. It would have been obvious at the time the invention was made to have utilized a pressure sensor and switch control system for switching on an alarm in the solder plating apparatus and method of the admitted prior art which included gauges to indicate rinse water pressure because it is known to replace gauges with a pressure sensor and associated electronics to activate an alarm to provide a more automated system as taught by Ennis et al, and it is known to use an alarm to indicate insufficient rinsing water pressure as taught by Brinkmann. Claim 8 is similar to claim 1 but is drafted using "means for" language. The recited means for monitoring and means for triggering have been considered with respect to the apparatus disclosed in the specification and equivalents thereof. The apparatus suggested by the prior art relied on is considered to fall within the scope of the recited means for limitations.

7. Claims 2, 4, 9, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in view of Ennis et al (4,652,368) and Brinkmann (4,852,385) as applied to claims 1, 3, 8, 10 and 11 above, and further in view of Wiltrout (4,029,114).

8. Claims 2, 4, 9, 14 and 15 additionally differ from the admitted prior art by reciting that the solder plating machine is automatically shut down based on one or more readings by the pressure sensor. The Wiltrout patent is directed to a wash water reclaim system. The system includes pressure sensor 130 connected to the discharge of the rinse pump 33. When the pressure drop measured by the sensor falls below a predetermined level and there is inadequate pressure and flow for the system to operate properly, an audio and visual alarm is turned on and the pump is turned off (column 3, line 65 to column 4, line 3). It would have been obvious at the time the invention was made to have turned the solder plating machine off as well as sounding an alarm because it is known to turn equipment off when pressure and flow are too low for it to operate properly as taught by Wiltrout.

9. Claims 5, 6, 7, 12, 13 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over admitted prior art in view of Ennis et al (4,652,368) and Brinkmann (4,852,385) and further in view of Wiltrout (4,029,114) as applied to claims 2, 4, 9, 14 and 15 above, and additionally in view of Buckler et al (5,755,884).

10. Claims 5, 6, 7, 12 and 13 additionally recite that the switch control system includes memory which retains one or more readings and an expert system. The Buckler et al patent is directed to a coating assembly with pressure sensing. As shown in figure 9, pressure sensor 132 provides data to a digital control system which is considered to be an expert system as recited in the instant claims. The control system includes memory element 334. Downstream pressure is sample by sensor 132 over successive sampling periods comprised of a predetermined number. The sampled pressure is compared with high and low alarm limits. Fluid flow condition data is also created by measuring the average static pressure during the sampling period and comparing it to the reference static pressure value (column 19, lines 39-65). Additional measurements are taken and compared to alarm limits as explained at column 19, line 66 to column 20, line 36. Figure 10 shows an algorithm used in handling detected errors. It would have been obvious at the time the invention was made to have utilized expert control in providing automation of alarm conditions in the apparatus and process of the admitted prior art as taught by Buckler et al because improved control of the process would have been obtained.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William T. Leader whose telephone number is

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703-308-2530. The examiner can normally be reached on Mondays-Thursdays and alternate Fridays, 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King, can be reached on 703-308-1146. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



William Leader
September 26, 2003

ROY KING 
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700